



FMMT558

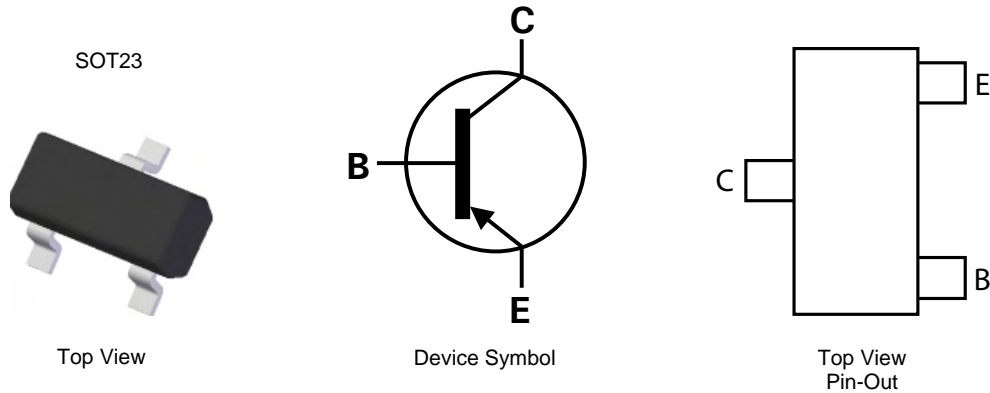
400V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23

Features

- 500mW Power dissipation
- 150mA Continuous collector current
- 500mA Peak Pulse Current
- Excellent h_{FE} Characteristics Up To 100mA
- Low Saturation Voltage
- Complementary part number FMMT458
- **Totally Lead-Free & Fully RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

Mechanical Data

- Case: SOT23
- Case material: molded plastic. "Green" molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 **(3)**
- Weight: 0.008 grams (Approximate)

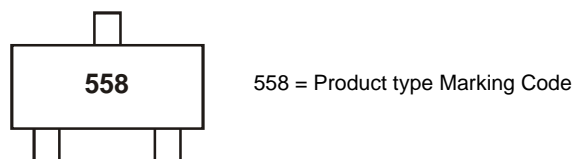


Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT558TA	AEC-Q101	558	7	8	3,000
FMMT558QTA	Automotive	558	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
 3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified.
 5. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

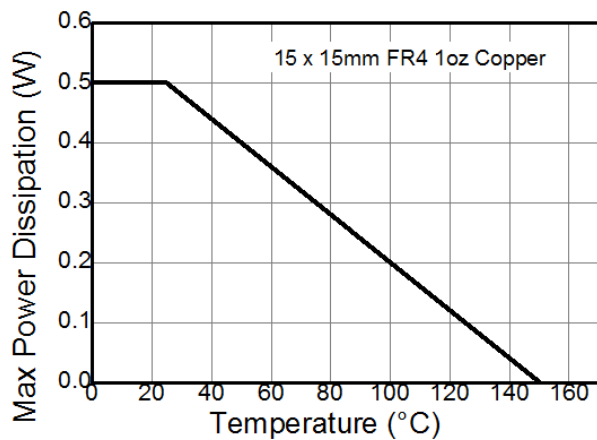
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-400	V
Collector-Emitter Voltage	V_{CEO}	-400	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-150	mA
Peak Pulse Current	I_{CM}	-500	mA
Base Current	I_B	-200	mA

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

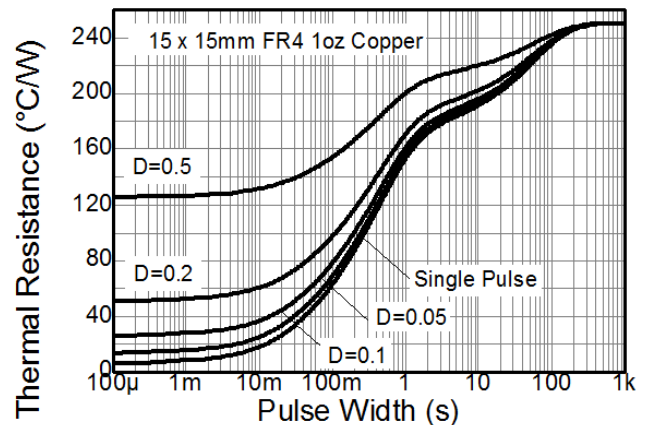
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	500	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 7)	$R_{\theta JL}$	197	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 6. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
7. Thermal resistance from junction to solder-point (at the end of the collector lead).

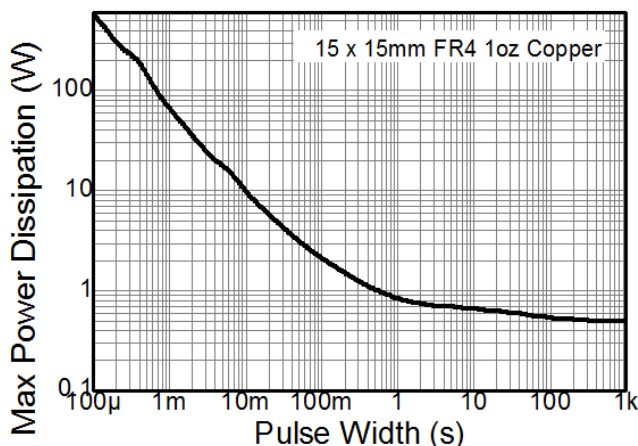
Thermal Characteristics and Derating information



Derating Curve



Transient Thermal Impedance



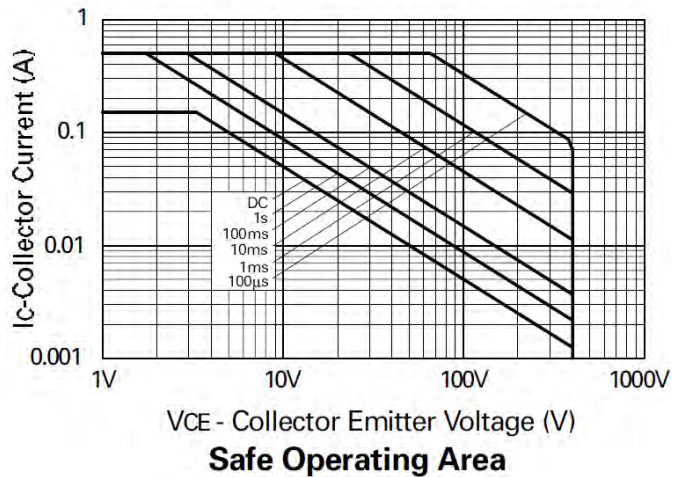
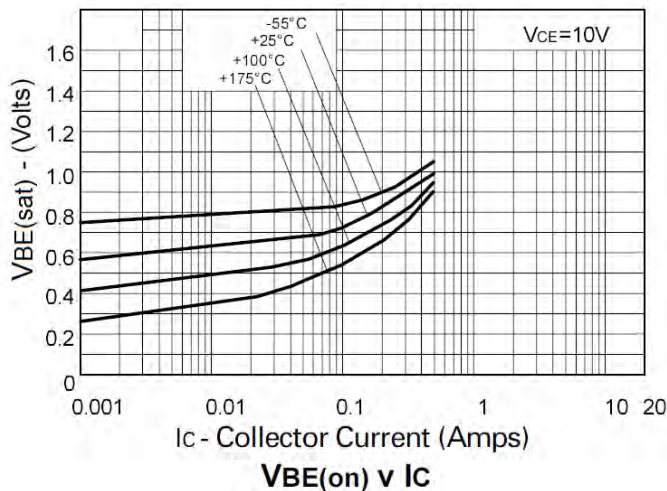
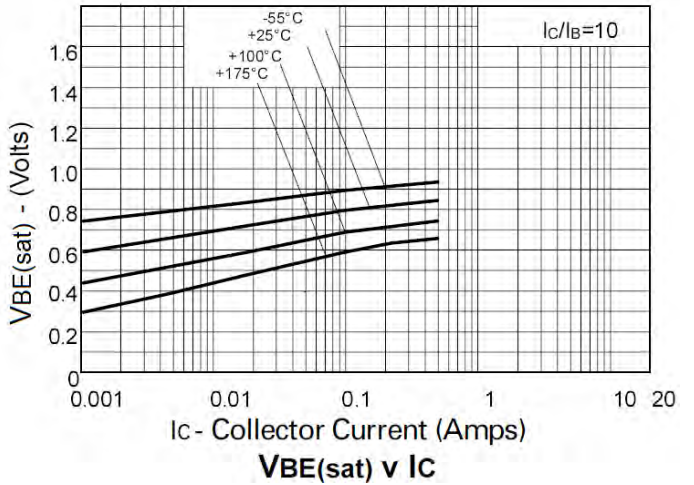
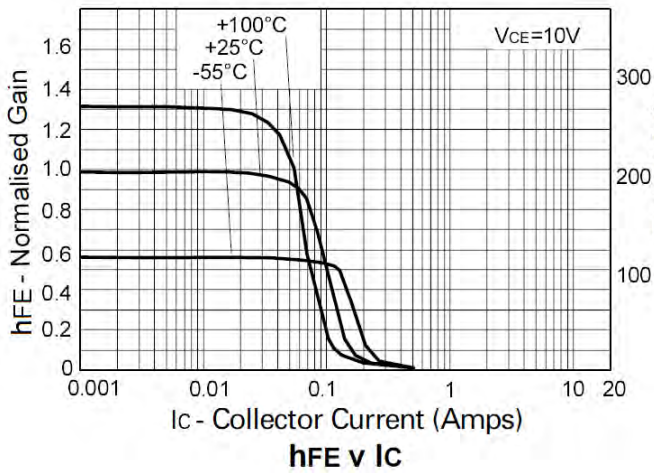
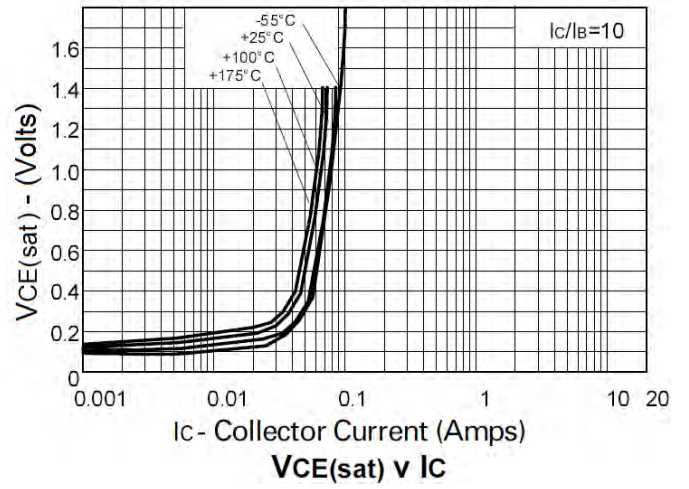
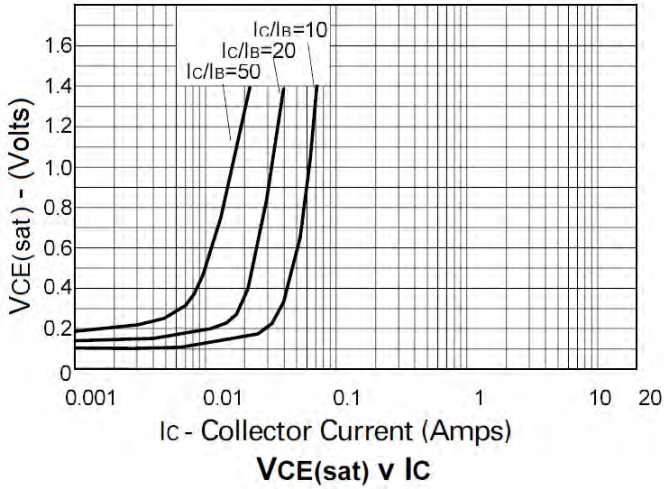
Pulse Power Dissipation

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-400	-	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	-400	-	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	-	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	-	-100	nA	V _{CB} = -320V
Emitter Cutoff Current	I _{EBO}	-	-	-100	nA	V _{EB} = -4V
Collector Emitter Cutoff Current	I _{CES}	-	-	-100	nA	V _{CE} = -320V
Static Forward Current Transfer Ratio (Note 8)	h _{FE}	100 100 15	- - -	- 300 -	-	I _C = -1mA, V _{CE} = -10V I _C = -50mA, V _{CE} = -10V I _C = -100mA, V _{CE} = -10V
Collector-Emitter Saturation Voltage (Note 8)	V _{CE(sat)}	-	-	-200 -500	mV mV	I _C = -20mA, I _B = -2mA I _C = -50mA, I _B = -6mA
Base-Emitter Turn-On Voltage (Note 8)	V _{BE(on)}	-	-	-0.9	V	I _C = -50mA, V _{CE} = -10V
Base-Emitter Saturation Voltage (Note 8)	V _{BE(sat)}	-	-	-0.9	V	I _C = -50mA, I _B = -5mA
Output Capacitance	C _{obo}	-	-	5	pF	V _{CB} = -20V, f = 1MHz
Transition Frequency	f _T	50	-	-	MHz	V _{CE} = -20V, I _C = -10mA, f = 20MHz
Turn-On Time	t _{on}	-	95	-	ns	V _{CE} = -100V, I _C = -50mA
Turn-Off Time	t _{off}	-	1600	-	ns	I _{B1} = 5mA, I _{B2} = -10mA

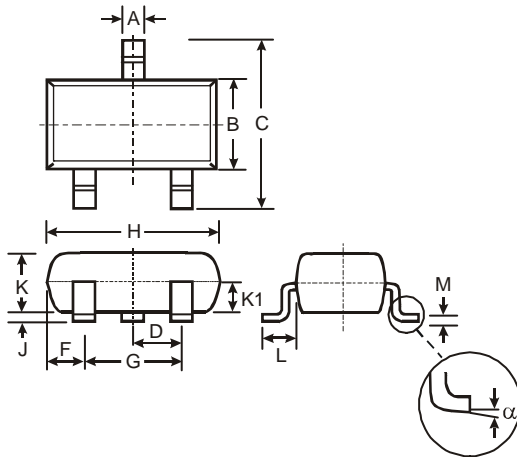
Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

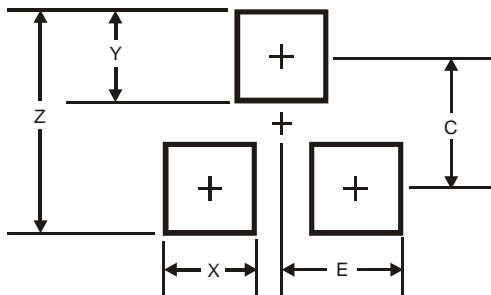
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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